Gustavus Forelands Bear Population Study: Determining the Minimum Number of Black and Brown Bears Through Non-Invasive Genetic Methods.

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Background:

Bears that occupy the Gustavus forelands frequently move between National Park Service and State owned land. There has never been a population study done on black (Ursus americanus) and brown (U. arctos) bears within Glacier Bay National Park or its surrounding areas. Understanding population is vital when trying to determine the potential impacts of humans on these bear populations. Mark-recapture methods using barbed wire installations on trees and scented hair traps throughout the forelands is a noninvasive way to "mark" bears giving them an individual id as well as learning about the sex ratio and distribution throughout the area. A minimum population of bears can be extrapolated from the information returned after the genetic hair analysis. This information will help wildlife managers make important decisions concerning bear management throughout the Gustavus forelands as well as create a population monitoring protocol for future studies.

Hair Traps

Methods:

- 25 bear rub trees were equipped with two strands of barbed wire in the summer of 2011. Each tree was checked for hair every 10-14 days throughout the summer and fall seasons . Trees are checked on the same interval during the spring and summer months in 2012.
- 8 scented hair traps were deployed during the spring of 2012. Traps were baited with a liquid scent on a pile of rotting wood in the center of the trap to ensure there is no food reward for the bear. All traps were checked and re-baited on the same interval as the rub trees.
- Hair samples are analyzed by Wildlife Genetics International for individual id, sex, and species for each individual sample.
- All mark-recapture statistical analysis of findings is done using program MARK.

Study Area:

The Gustavus forelands, an area consisting of approximately 200 square km, lies at the southern border of Glacier Bay National Park. This relatively flat terrain is surrounded by either the high alpine and sub-alpine peaks of the Excursion ridgeline or water from Glacier Bay and Icy Strait.

Objectives:

- Determine minimum population estimate of bears in the Gustavus forelands, their distribution and sex ratio.
- Establish monitoring protocol for determining bear population trends.
- Provide education and outreach on minimizing bear/human conflicts within the Gustavus community as well as assisting the needs of other agencies and/or groups.
- Explore sources of bear mortality and determine sources of bear human conflict past and present.
- Explore possible interagency bear management solutions to reduce bear-human conflict.

Rub Trees